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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/580,327

05/24/2006

Yusuke Mitarai

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EXAMINER

TORRES, JOSEPH D

ART UNIT

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2112

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/580,327	Applicant(s) MITARAI ET AL.	
	Examiner Joseph D. Torres	Art Unit 2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-46 is/are pending in the application.
- 4a) Of the above claim(s) 17-23, 32-36 and 38-46 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16, 24-31 and 37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I (Claims 16, 24-31, and 37) in the reply filed on 04/28/2008 is acknowledged.

Claims 17-23, 32-36 and 38-46 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 04/28/2008.

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Claim 16 recites, "method for encoding n data to be encoded, into an adaptive base each of which includes m data". Nowhere does the Applicant teach " encoding n data to be encoded, into an adaptive base each of which includes m data".

The amendment filed 10/25/2007 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: Claim 16 recites,

“method for encoding n data to be encoded, into an adaptive base each of which includes m data”.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Objections

Claim 28 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 28 fails to recite any limitation that can be regarded as a step/action further limiting claims from which claim 28 depends.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 16, 24-31 and 37 are rejected under 35 U.S.C. 112, first paragraph, because the best mode contemplated by the inventor has not been disclosed.

Claims 16, 24-31 and 37 substantially recite an initializing step of initializing an adaptive base $X(x)$ and $Y(y)$; a reconstruction step of reconstructing n data $\tilde{f}(x, y)$ from the adaptive base $X(x)$ and $Y(y)$ using a predetermined conversion $\tilde{f}(x, y) = X(x)Y(y)$; an error calculation step of calculating an error ΔX and ΔY between said n data $f(x, y)$ to

be encoded and said reconstructed n data $\tilde{f}(x, y)$ by using a predetermined error evaluation function $E = \iint \frac{1}{2} \{f(x, y) - \tilde{f}(x, y)\}^2 dx dy$; a correction step of correcting said adaptive base $X(x)$ and $Y(y)$ based on said error by calculating $X'(x) = X(x) + \Delta X$ and $Y'(y) = Y(y) + \Delta Y$; and a step of determining whether or not said error E calculated in said error calculation step has converged, wherein correction in said correction step is repeated until it is determined that said error E has converged.

Nowhere in the specification does the Applicant provide concrete examples for any of the functions $X(x)$, $Y(y)$, $f(x, y)$ or $\tilde{f}(x, y)$. Since there are an arbitrary number of functions over a coordinates (x, y) and since the Applicant has only presented the functions in purely abstract form or defined by other functions that are purely in abstract from, the Applicant has not fulfilled the Best mode requirement by providing at least one concrete function that can fulfill the requirements of a best mode of operation.

Furthermore; convergence is a relative term and nowhere in the Application, does the Applicant present any value to which E converges, hence; here is no best mode in the specification for convergence.

Claims 16, 24-31 and 37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. As pointed out above, the functions $X(x)$, $Y(y)$, $f(x, y)$ or $\tilde{f}(x, y)$ taught in

the specification as representing adaptive bases, data and reconstructed data for coordinates (x, y) are presented in purely abstract form. Since there are an infinite number of functions over coordinates (x, y) it is highly unlikely that one of ordinary skill in the art at the time the inventions was made could come up with functions **without recourse to undue experimentation** to provide a high-efficiency data coding technique as recited on page 3 of the Applicant's specification (Note: the Applicant has not shown that high-efficiency data coding is guaranteed by any just set of arbitrary functions $X(x)$, $Y(y)$, $f(x,y)$ or $\tilde{f}(x,y)$ and since the Applicant has not provided a best mode of operation, it is not clear whether there exists any set of functions $X(x)$, $Y(y)$, $f(x,y)$ or $\tilde{f}(x,y)$ that will guarantee high-efficiency data coding).

Claim 16 recites, "method for encoding n data to be encoded, into an adaptive base each of which includes m data". Nowhere does the Applicant teach " encoding n data to be encoded, into an adaptive base each of which includes m data".

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 16, 24-31 and 37 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01.

Claims 16, 24-31 and 37 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01.

Claim 16 recites, “method for encoding n data to be encoded, into an adaptive base each of which includes m data”. Nowhere in the body of the claims do the claims recite any element or step indicating how the recited limitations in the claim are connected to a method encoding n data into an adaptive base.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 16, 24-31 and 37 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 16, 24-31 and 37 substantially recite an initializing step of initializing an adaptive base $X(x)$ and $Y(y)$; a reconstruction step of reconstructing n data $\tilde{f}(x, y)$ from the adaptive base $X(x)$ and $Y(y)$ using a predetermined conversion $\tilde{f}(x, y) = X(x)Y(y)$; an error calculation step of calculating an error ΔX and ΔY between said n data $f(x, y)$ to be encoded and said reconstructed n data $\tilde{f}(x, y)$ by using a predetermined error evaluation function $E = \iint \frac{1}{2} \{f(x, y) - \tilde{f}(x, y)\}^2 dx dy$; a correction step of correcting said adaptive base $X(x)$ and $Y(y)$ based on said error by calculating $X'(x) = X(x) + \Delta X$ and $Y'(y) = Y(y) + \Delta Y$; and a step of determining whether or not said error E calculated in said error calculation step has converged, wherein correction in said correction step is repeated until it is determined that said error E has converged.

Art Unit: 2112

The claims as written attempt to gain a patent on every “substantial practical application” of an abstract mathematical algorithm/idea.

The courts have also held that a claim may not preempt< ideas, laws of nature or natural phenomena. The concern over preemption was expressed as early as 1852.

See *Le Roy v. Tatham*, 55 U.S. 156, 175 (1852) (“A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right.”); *Funk Brothers Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 132, 76 USPQ 280, 282 (1948) (combination of six species of bacteria held to be nonstatutory subject matter).

**>Accordingly, one may not patent every “substantial practical application” of an idea, law of nature or natural phenomena because such a patent would “in practical effect be a patent on the [idea, law of nature or natural phenomena] itself.” *Gottschalk v. Benson*, 409 U.S. 63, 71-72, 175 USPQ 673, 676 (1972).

Simply put, claims that describe features in the Applicant’s specification at the Abstract level without any regard to function or utility are nonstatutory.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 16, 24-27, 30, 31 and 37 rejected under 35 U.S.C. 102(b) as being anticipated by Amano; Kageaki (US 6519545 B1).

35 U.S.C. 102(b) rejection of claims 16, 24-27, 30, 31 and 37.

Amano teaches an initializing step of initializing an adaptive base (col. 4, lines 42-48 in Amano); a reconstruction step of reconstructing n data from the adaptive base using a predetermined conversion (Claims 1 and 4 in Amano teaches a data acquisition means for acquiring data and extrapolating, i.e., reconstructing data); an error calculation step of calculating an error between said n data to be encoded and said reconstructed n data by using a predetermined error evaluation function (claim 3 in Amano teaches the uses of eigenvalues for judging the degree of deviation); a correction step of correcting said adaptive base based on said error by calculating (Col. 16, line 15-21 in Amano) and; and a step of determining whether or not said error calculated in said error calculation step has converged (Col. 16, line 15-21 in Amano), wherein correction in said correction step is repeated until it is determined that said error has converged (Col. 16, line 15-21 in Amano).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (571) 272-3829. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques Louis-Jacques can be reached on (571) 272-6962. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Joseph D. Torres
Primary Examiner
Art Unit 2112

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